Appln. No. 10/802,227
Amdt. dated 06/24/05
Reply to Office Action of 06/10/05

REMARKS

Claims 1-25 are pending and remain for consideration. Claims 1 and 14 are amended herein.

Claims 1-7, 13-15 and 22-25 are rejected under 35 U.S.C. § 102(b) as allegedly being anticipated by Clinton et al. (U.S. Pat. No. 4,056,771). The rejection is traversed and reconsideration is respectfully requested, particularly in view of the clarifying amendments to the claims.

Clinton et al. is directed to a high potential DC insulation tester for testing insulation on a conductor at a first station within a rotating environment for detection at a second remote station in a non-rotating environment. The tester includes a high potential DC power supply at the first station having first and second output terminals between which a high potential is produced. A testing electrode is connected to the first output terminal for applying a high potential from the power supply to the insulation under test. A current sensor is also at the first station connected with an output terminal of the power supply and has a low voltage output producing a signal indicative of current flowing between the output terminals of the power supply. A detector at the second station is responsive to the signal from the current sensor for detecting current from the DC power supply. A rotatable electrical coupling is connected between the current sensor and the detector for receiving the low voltage output signal at the first station within the rotating environment and transmitting the signal to the second station in the non-rotating environment. More specifically, the insulation tester of Clinton et al. uses a slip ring assembly 60 for transmitting a signal indicative of a spark generated at a test electrode 34 disposed within the rotating bow of a pairing machine or twinner to detection circuitry disposed outside of the rotating bow.

It is most desirable to spark test the twisted pair as they are wound on the take-up reel in order to save time and keep productions costs down. However, the only place that the wires exist as a twisted pair is inside the rotating bow, just before

they are wound on the take-up reel. This presents certain problems in the spark testing of the wire. (See paragraph [0004] of the present application).

A problem with regard to spark testing a wire within a twinner is that the high potential test electrode must be inside the bow, where space is limited, and there can be no directly wired connections to the electrode because of the bow rotation around the test components mounted on a cradle of the twinner. Since the bow rotates around a cradle of a twinner where test components are located, any power or control wiring is typically brought to the cradle using slip ring assemblies through the shaft around which the bow rotates. Space limitations on existing machines dictate that only two low voltage slip rings are available for this purpose. Prior to this, because of the many functions a spark tester may be called upon to serve, earlier designs for spark testers had controls and indicators inside the twinning bow. Adjustment of the spark tester controls was inconvenient and time consuming because the high inertia machinery had to be stopped each time an adjustment was made and then restarted. (See paragraph [0005] of the present application).

Controlling a spark tester through slip ring assemblies imposes limitations to the successful application of test equipment for a twinner. Retrofitting existing machinery to add a spark tester is very difficult because if the necessary slip rings are not available, adding them requires extensive machinery modifications which are costly and difficult. Spark testers, when located within the bow of a twinner, have traditionally required up to three slip ring assemblies. Most often the equipment had to be designed and built to incorporate the spark tester. Slip rings are subject to wear and require regular maintenance. Often they do not provide uninterrupted signal contact, thereby resulting in poor spark tester performance. (See paragraph [0006] of the present application).

The system for high voltage testing of twisted insulated conductors as recited in amended independent claim 1 of the present application does not employ slip rings to transmit fault detection information, but rather includes a transmitter to be disposed within the rotating mechanism (i.e., rotating bow of a twinner) for transmitting an electromagnetic wave signal carrying information representative of fault detection characteristics of twisted insulated conductors to a receiver disposed outside of the rotating mechanism. Similarly, amended independent method claim 14 of the present application is distinguishable over the tester of Clinton et al. in that the claimed method of high voltage testing of twisted insulated conductors includes transmitting an electromagnetic wave signal carrying information representative of fault detection characteristics of the twisted insulated conductors to a location outside of the rotating mechanism.

For an anticipation rejection to be appropriate, each and every element or limitation in a rejected claim must be disclosed in a single prior art reference used in the claim rejection. Because Clinton et al. does not teach or suggest a device or method for high voltage testing of twisted insulated conductors including a transmitter disposed within the rotating mechanism of a twinner for transmitting an electromagnetic wave signal carrying fault detection information from a location within the rotating mechanism to a location outside of the rotating mechanism, it cannot be maintained that Clinton et al. anticipates amended independent claims 1 and 14. Moreover, because claims 2-7, 13, 15 and 22-25 each ultimately depend from and thereby incorporate the limitations of one of independent claims 1 and 14, these dependent claims are not anticipated by Clinton et al. for at least the reasons set forth for the independent claims.

Claims 8-11 and 16-21 are rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over Clinton et al. (U.S. Pat. No. 4,056,771) in view of Kiefer (U.S. Pat. No. 5,594,176). The rejection is traversed and reconsideration is respectfully

requested, particularly in view of the clarifying amendments to the claims.

Kiefer is directed to an ultrasonic scan assembly for use in inspecting downhole gas pipes. The assembly includes a sensor section which rotates in relation to an end section that remains essentially level forming a rotating interface. The sensor section includes at least one ultrasonic transducer for transmitting interrogating pulses into a pipe wall and for receiving return pulses that are analyzed for determining the maintenance and repair needs of the gas pipe. Provided in the scan assembly is a rotary transformer for magnetically coupling signals, such as return pulse data or power, across the rotating interface of the scan assembly. The rotary transformer includes a primary winding on one section of the scan assembly and a secondary winding on another section of the scan assembly. The primary windings and secondary windings associated with respective sections of the scan assembly can be placed in parallel or concentric relationship.

Apparently the Examiner cites Kiefer for mentioning an RF transceiver. However, Kiefer is non-analogous art because the subject matter of the present application and that of Kiefer are in different fields of endeavor. The Examiner cannot rely on non-analogous art to support an obviousness rejection. Someone skilled in the pertinent art of spark testing in conjunction with twinners or pairing machines would not be motivated to consult Kiefer directed to pipeline pigs or the inspection of downhole gas pipes. Moreover, Kiefer teaches away from the use of RF transmission. Kiefer states that the use of slip rings and RF transmission have several disadvantages. (See col. 1, lines 58-62).

Furthermore, the subject matter of Kiefer is not reasonably pertinent to the problem with which the present invention as claimed in concerned. Kiefer is directed to transferring information from rotating sensors within a pipeline pig to a non-rotating section of the pipeline pig. To solve this problem, Kiefer employs a non-contacting rotary transformer including rotating primary windings and non-

rotating secondary windings. The problem solved by the present invention, on the other hand, concerns transmitting information derived from a stationary or non-rotating fault detector to a stationary or non-rotating controller that are separated from one another by a rotating mechanism (i.e., rotating bow) of a twinner. The rotary transformer of Kiefer does not solve the problem addressed in the present application because both the source and destination components pertaining to signal transmission in the present application are non-rotating.

It is therefore respectfully submitted that the teaching of Kiefer does not materially add to the teaching of Clinton et al. to render claims 8-11 and 16-21 obvious.

Claim 12 is rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over Clinton et al. (U.S. Pat. No. 4,056,771). The rejection is traversed and reconsideration is respectfully requested, particularly in view of the clarifying amendments to the claims.

The Examiner acknowledges that Clinton et al. does not disclose that a low voltage power supply is disposed inside the rotating mechanism. However, the Examiner believes that "A person of ordinary skill in the art would find it obvious at the time the invention was made to modify Clinton to dispose a low voltage power supply inside the rotating mechanism, since changing the location of the low voltage power supply does not change the functionality of the insulation fault tester of Clinton." Applicants respectfully disagree with the Examiner's grounds of rejection.

Clinton et al. does not teach or suggest a low voltage power supply for energizing the high voltage power supply, much less disposing a low voltage power supply within the rotating mechanism as is recited in claim 12 of the present application. Clinton et al. only mentions a high potential DC power supply 22. In fact, Clinton et al. does not employ a low voltage power supply which could be located within the rotating mechanism of a twinner because the high voltage power

supply converts the relatively low AC voltage to a high DC voltage. (See col. 3, lines 10-12 of Clinton et al.).

For the foregoing reasons, it is respectfully submitted that claim 12 is unobvious in view of Clinton et al. Moreover, claims 12 depends from and thereby incorporates the limitations of claim 1. It has been demonstrated above that Clinton et al. contains insufficient teaching with regard to electromagnetic wave transmission to anticipate claim 1 from which rejected claim 12 depends. It therefore follows that Clinton et al. also contains insufficient teaching with regard to electromagnetic wave transmission to render obvious claim 12.

In view of the foregoing, it is respectfully submitted that claims 1-25 are in condition for allowance. All issues raised by the Examiner having been addressed, an early action to that effect is earnestly solicited.

No fees or deficiencies in fees are believed to be owed. However, authorization is hereby given to charge our Deposit Account No. 13-0235 in the event any such fees are owed.

Respectfully submitted,

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